**Cell Cycle and Mitosis Lab**

**Introduction:**

In a growing root, the cells of the root are constantly dividing. Because each cell divides independently of the others, o root tip contains many cells at different phases of the cell cycle. In this lab, you will observe the various stages of the cell cycle. . You will then estimate the proportion of time that cells in the root tip spend in interphase and the 4 stages of mitosis.

**Scientific Question:** What percentage of time does the cell spend in each phase of the cell cycle?

**Hypothesis: *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

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**Procedure:**

1. Complete the Data table below in your notebook
2. Turn on microscope and turn to lowest power lens (the smallest lens)
3. Obtain a slide and place it under the microscope where you can see the pointed end of the root. This is where the cells are actively dividing.
4. On the lowest power, find and focus on the root tip. Adjust the focus until you can see the root clearly.
5. Switch to the highest power (very carefully), and bring the cell into focus. Notice the boxlike shape of the cells in rows.
6. Using the rows, count how many cells are in each phase (Interphase, Prophase, Metaphase, Anaphase, and Telophase). One partner will look into the microscope and say out the phases. The second partner will put a tally mark for each phase. Record the data in your notebook
7. Calculate the percentage for each phase. Percentage = Part/ Total \* 100
8. Answer the questions based on your data

|  |  |  |
| --- | --- | --- |
| **Phase** | **Number of Cells** | **Percentage** |
| Interphase |  |  |
| Prophase |  |  |
| Metaphase |  |  |
| Anaphase |  |  |
| Telophase |  |  |
| **Total** |  |  |

**Data:**

**Data Analysis*:*** *\*\* Answer in complete sentences\*\*\**

1. Based on you data what phase has the highest percentage and why?
2. Your data represents the time every cell spends in each of the phases. For example if every phase occurred 20% of the time, during the life a cell it would spend 20% of its life in each phase. What percent of an onion cell’s life does it spend in Interphase? Mitosis?
3. If you were to look at animal cells instead of plant cells, do you think the cells would spend the same amount of time in each phase? Why or Why not?
4. Draw a pie chart to represent the time the cell spends in each phase.

**Conclusion:**

*Write a CER conclusion answering the question: What percentage of time does the cell spend in each phase of the cell cycle?*